

MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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INTRODUCTION.

The MONTHLY WEATHER REVIEW for February, 1904, is based on data from about 3300 stations, classified as follows:

Weather Bureau stations, regular, telegraph, and mail, 167; West Indian Service, cable and mail, 4; River and Flood Service, regular 43, special river and rainfall, 190, special rainfall only, 56; voluntary observers, domestic and foreign, 2565; total Weather Bureau Service, 3025; Canadian Meteorological Service, by telegraph and mail, 20, by mail only, 13; Meteorological Service of the Azores, by cable, 2; Meteorological Office, London, by cable, 8; Mexican Telegraph Company, by cable, 3; Army Post Hospital reports, 18; United States Life-Saving Service, 9; Southern Pacific Company, 96; Hawaiian Meteorological Service, 75; Jamaica Weather Service, 130; Costa Rican Meteorological Service, 25; The New Panama Canal Company, 5; Central Meteorological Observatory of Mexico, 20 station summaries, also printed daily bulletins and charts, based on simultaneous observations at about 40 stations; Mexican Federal Telegraph Service, printed daily charts, based on about 30 stations.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. R. C. Lydecker, Territorial Meteorologist, Honolulu, Hawaii; Señor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Camilo A. Gonzales, Director-General of Mexican Telegraphs; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; Lieut. Commander H. M. Hodges, Hydrographer, United States Navy; H. Pitier, Director of the Physico-Geographic Institute, San José,

Costa Rica; Commandant Francisco S. Chaves, Director of the Meteorological Service of the Azores, Ponta Delgada, St. Michaels, Azores; W. N. Shaw, Esq., Secretary, Meteorological Office, London; Rev. José Algué, S. J., Director, Philippine Weather Service; and H. H. Cousins, Chemist, in charge of the Jamaica Weather Office; Señor Enrique A. Del Monte, Director of the Meteorological Service of the Republic of Cuba.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to conform generally to the modern international system of standard meridians, one hour apart, beginning with Greenwich. The Hawaiian standard meridian is $157^{\circ} 30'$, or $10^{\text{h}} 30^{\text{m}}$ west of Greenwich. The Costa Rican standard meridian is that of San José, $5^{\text{h}} 36^{\text{m}}$ west of Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local standard is mentioned.

Barometric pressures, whether "station pressures" or "sea-level pressures," are now reduced to standard gravity, so that they express pressure in a standard system of absolute measures.

FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

Exceptionally severe weather prevailed along the transatlantic steamer routes of the North Atlantic Ocean during the first and second decades of the month, and in a number of instances gales were experienced as far south as the Azores. From the 23d to the 28th generally high barometric pressure over the British Isles and low pressure over Spain and Portugal was attended by abnormally low temperature over western Europe.

Over the western Atlantic the month opened with a storm of marked intensity moving eastward over New England and the Canadian Maritime Provinces. The 3d, 7-8th, 15-16th, 22d-25th, and the 29th were stormy days on the middle Atlantic and New England coasts, the severest gales of the month in that region occurring on the 15th and 16th. No severe storms were reported on the Gulf of Mexico or its coasts. The principal Lake storms of the month occurred on the 2d and 6-7th, with a maximum reported wind velocity of 64 miles an hour at Buffalo, N. Y., on the 7th. Storms of less-marked severity crossed the Lake region on the 14th, 21st-22d, 23d, 24th, and 29th. On the north Pacific coast the month was usually stormy, and on a number of dates the gales that attended the passage of storms across the northern coast line extended southward over California. As a rule, the storms that appeared on the north Pacific coast crossed the United States, those that followed a northern track being attended by gales on the Great Lakes and the Atlantic seaboard. The

storms from the North Pacific that followed a southeast track dissipated or diminished greatly in intensity upon reaching the southwestern and Gulf districts. Ample warning was given to all American ports of the important windstorms of the month.

From the northeastern slope of the Rocky Mountains eastward to the Atlantic coast and southeastward over the east Gulf and South Atlantic States the month was colder than the average February, and from the Missouri Valley over the Lake region, Ohio Valley, and Middle Atlantic and New England States exceptionally low temperatures prevailed. In the Southwestern States and from the Rocky Mountains to the Pacific coast the temperature averaged above the normal. The month opened with a cold wave of marked intensity over the Atlantic seaboard, and on the morning of the 2d the lowest temperatures of the present winter were registered in the Middle Atlantic States. During the night of the 5th a cold wave swept southward over the Plateau and Rocky Mountain districts, and extended thence eastward to the Atlantic coast by the 8th. The third well-marked cold wave of the month advanced from the British Northwest Territories over the West and Northwest during the night of the 13th, covered the central valleys during the 14th, and reached the Middle Atlantic and New England States during the night of the 15th, where the temperature continued very low until the 17th. The decided falls in temperature were forecast and made the subject of special warnings.